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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/399,687	09/21/1999	JEAN-MARIE TRAN	NC13800	2549

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EXAMINER

SWICKHAMER, CHRISTOPHER M

ART UNIT PAPER NUMBER

2697

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/399,687

Applicant(s)

TRAN ET AL.

Examiner

Christopher M Swickhamer

Art Unit

2697

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2697

Response to Amendment

This Office Action is in response to the amendment filed on 01/20/03. The drawings submitted have been approved by the draftsman. Amended claims 1, 3, 4, 10, 11, 16, and 17 have been entered. Claims 1-19 are pending. Amended claim 1 is similar to claim 16. Claim 16 has been rejected in the previous office action; therefore currently neither claim is patentable.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "12" and "14" have both been used to designate "a mobile station" on page 9 and 11. This list is not inclusive; the specification must be checked to ensure that each reference number uniquely identifies items in the specification and in the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Application/Control Number: 09/399,687

Art Unit: 2697

- Claims 1-4, 10-12, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuda, U.S. Patent No. 6,044,277. Referring to Claim 1, Tsuda discloses a network control station (sending station) and a mobile station (receiving station, col. 2, lns. 16-17) sending a communication signal upon a communication channel susceptible to fading (col. 2, lns. 30-32). The mobile station has a signal fade detector (determiner) to determine when the signal has dropped below a threshold on a communication channel received at the receiving station (col. 10, lns. 5-10). The mobile station has means for controlling the average amount of the receive signal power, which would involve requests to the network controller to increase, or decrease the power level of the signal based on this average (col. 4, lns. 29-42, col. 5, lns. 15-30). If the fade of the signal is detected to beyond a selected threshold, no increase in signal power is requested, instead the system waits for the fade to recover before transmission begins again (col. 3, lns. 39-49).

- Referring to Claim 2, Tsuda discloses a means for measuring a carrier power to noise power ratio (signal-to-noise ratio, col. 4, lns. 29-36). If the carrier power to noise ratio drops below a certain level, the transmitted signal is stopped (col. 4, lns. 20-27)

- Referring to Claim 3, Tsuda discloses when the receiver carrier to noise ratio recovers from the fade (above the signal-to-noise ratio threshold), the mobile station retransmits the call request and returns to non-faded communication (col. 3, lns. 29-39 and col. 4, lns. 29-36).

- Referring to Claim 4, Tsuda discloses means for controlling the average amount of receive signal power (power control change indications to request a power increase) when the communication channel is within the selected threshold (col. 8, lns. 18-36). Controlling the receive signal power would involve requests to the network control station to adjust the power

Application/Control Number: 09/399,687

Art Unit: 2697

level to control the average. Adjusting could be an increase, decrease, or to maintain the same signal power.

- Referring to Claim 10, Tsuda discloses all of the limitations of Claim 1, where communication is stopped when the communication signal drops below a threshold (request a decrease in power levels, col. 10, lns. 5-11). Stopping transmission can be viewed as decreasing the power levels.

- Referring to Claim 11, Tsuda discloses all of the limitations of Claim 10, where the power control sends indications to stop communications when the received signal drops below a selected threshold (request the decrease of power levels by a selected magnitude, col. 10, lns. 5-11).

- Referring to Claim 12, Tsuda discloses all of the limitations of Claim 11, where the power control station does not allow transmission (maintains decreased power levels, col. 10, lns. 5-11). Tsuda discloses controlling the amount of receive signal power to maintain an average amount of received power. This would involve adjusting the power by a certain amount to maintain the average (col. 4, lns. 29-41).

- Referring to Claim 16, Tsuda discloses a power control method from a satellite (sending station) to a mobile station where the communication channel is susceptible to fading (col. 2, lns. 16-32). The mobile station determines when the fading of the communication signal has gone beyond a threshold, and provides power control indications not to send a signal (not to increase power) when the operation is detected to be beyond the selected threshold (col. 10, lns. 5-11). The mobile station has the ability to measure the average receive signal power, and the ability to control the average amount of power (col. 4, lns. 29-41). Adjusting the receive power would

Art Unit: 2697

involve increasing, decreasing, or maintaining the power of the sent signal in attempting to preserve the average.

- Referring to Claim 17, Tsuda discloses where the operation of the power control indications to the sending station are below a threshold (power level low enough to cause a decrease) to cause a halt (decrease in power levels) in communications until the signal power recovers (col. 3, lns. 10-28, col. 10, lns. 5-11).

- Referring to Claim 18, Tsuda discloses that once the signal level is above the threshold, normal transmission operations will occur (normal power control, col. 10, lns. 5-11).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda (U.S. Patent No. 6,044,277) in view of Davis (U.S. Patent No. 5,193,216). Referring to Claim 5, Tsuda discloses all of the limitations of Claim 1 as set forth above, and a means for controlling the received signal power (col. 4, lns. 37-41). Tsuda does not expressly disclose a determiner for determining the fade to be beyond the threshold after successive power control change indications request an increase in the power levels. Davis discloses a determiner that has a Received Signal Strength Indicator (RSSI) that monitors the N previous RSSI's. If the N RSSI's are below a threshold, the determiner indicates out of range (col. 5, lns. 56-68). If the N values

Application/Control Number: 09/399,687

Art Unit: 2697

do not indicate an "out of range" occurrence, such as when the communication device is shielded by a building, elevator (col. 6, lns. 12-22), or any multipath situation, then the device waits a predetermined time to declare "out of range". At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement a Received Signal Strength Indicator in the mobile station of Tsuda to determine if the fade has gone beyond the minimum threshold. One of ordinary skill in the art would have been motivated to do this since if the received signal strength values measured prior to the loss of the signal indicate that it is unlikely the communications device is out of the reception coverage area of the signal, but instead in a low signal area (col. 6, lns. 37-42).

- Referring to Claim 6, Tsuda further discloses that the determiner detects when the fading exhibited by the communication channel returns to be within the selected threshold (col. 10, lns. 5-10).

- Referring to Claim 7, Tsuda further discloses normal operations occur, such as increases in power levels, when the fading in the communication channel returns to be within the selected threshold (col. 10, lns. 5-11).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda in view of Dohi (U.S. Patent No. 6,034,952). Tsuda discloses all of the limitations of Claim 1 as set forth above. Tsuda does not expressly disclose a pilot signal broadcast and means to compare the pilot signal and its average to determine fading. Dohi discloses computing an average value of the received data symbols in a pilot signal, and comparing the average to the fading envelope (col. 4, lns. 9-13). At the time of the invention was made; it would have been obvious to one of ordinary skill in the art to send a pilot signal with the transmitted data. At the mobile station, the

Application/Control Number: 09/399,687

Art Unit: 2697

receiver circuitry computes the average power of the received symbols in the pilot symbol section, and compares the instantaneous power of the received signal to the average pilot signal strength. The mobile station uses the comparison information to determine if the signal is in a deep fade when the signal strength drops below a predetermined threshold. One of ordinary skill in the art would have been motivated to do this since it can be used to control transmission power by measuring the difference between the received signal power, and that of the average pilot signal power to determine if the minimum threshold had been crossed (col. 2, lns. 55-57, col. 4, lns. 9-13).

- Referring to Claim 9, Tsuda discloses all of the limitations of Claim 1. Tsuda does not expressly disclose a determiner that derives signal strength as a measure to determine fading using a pilot signal that crosses a selected negative value. Dohi discloses a power control system that compares an average pilot signal to the current pilot signal to determine if the communication signal is fading (col. 4, lns. 9-15). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to use a pilot and its average value to determine if the communication signal has faded below a threshold. One of ordinary skill in the art would have been motivated to do this since it can be used to control and adjust the transmission power of the following signals by comparing the current pilot signal, with the average pilot signal power to determine if the communication channel has crossed a minimum threshold and is experiencing a deep fade (col. 2, lns. 31-34, col. 11, lns. 38-55).

5. Claims 13-15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda in view of Hakkinen (U.S. Patent No. 5,839,056). Referring to claim 13, Tsuda discloses all of the limitations of Claim 1 as set forth above, and a determiner located at the mobile unit

Art Unit: 2697

(col. 8, lns. 1-12). Tsuda does not expressly disclose the communication system is a CDMA cellular communication system. Hakkinen discloses a CDMA cellular communication power control system where the sending station comprises a base station and the receiving station comprises a mobile station (col. 1, lns. 39-51). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the power control scheme of Tsuda for a CDMA cellular communication system. One of ordinary skill in the art would have been motivated to do this since power control has a significant influence on the capacity of a CDMA system (col. 1, lns. 52-54).

- Referring to Claim 14, Tsuda further discloses that the power control apparatus is located at the mobile station (col. 3, lns. 28-38).

- Referring to Claim 15, Tsuda further discloses a network to mobile (forward-link) traffic channel where the determiner detects if the forward-link exhibits a deep fade (col. 3, lns. 19-28).

- Referring to Claim 19, Tsuda discloses all of the limitations of Claim 16, and that the operations of determining are performed at the mobile station (col. 8, lns. 1-12). Tsuda does not expressly state that the system is for a cellular communication system. Hakkinen discloses a cellular communication power control system where the receiving station comprises a mobile station (col. 1, lns. 20-34). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Tsuda's satellite to mobile communication system as a cellular communication power control system. One of ordinary skill in the art would have been motivated to do this since power control effects the capacity of a mobile system. Interference

Art Unit: 2697

and fading are two key considerations that affect channel capacity. Power control can be used in mobile systems to minimize the effects of fading and interference (col. 1, lns. 52-63).

Response to Arguments

6. Applicant's arguments filed 01/20/03 have been fully considered but they are not persuasive. The argument states that Tsuda fails to teach the "power control change indications form requests that request the power levels of the communication signal, not be increased, if the fading of the communication signal is below a selected threshold," page 9, lines 9-12. The Examiner respectfully disagrees. The Tsuda reference teaches to stop communication when the fading of the communication signal is below a threshold, and to resume normal communications when the signal has recovered (col. 3, lns. 29-39). It is the examiner's position to interpret stopping communications while the signal is below a threshold is the same as not increasing the power level to overcome the fade. The examiner therefore concludes the rejection to claims 1 and 16 under 102(e) stands.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Application/Control Number: 09/399,687

Art Unit: 2697

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sawahashi et al, US Patent No. 6,137,788. *CDMA Demodulating Apparatus*.

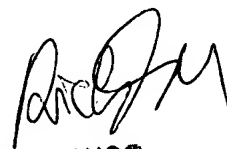
This reference teaches a power controller where the transmission power is increased or decreased to follow the fade, but when the fading exceeds a certain rate, the transmission power control does not follow the fade, and the control power response is flat (col. 22, lns. 65-col. 23, lns. 32).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M Swickhamer whose telephone number is (703) 306.4820. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703) 305.4798. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308.9571 for regular communications and (703) 827.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305.3900.

CMS
February 12, 2003


RICKY NGO
PRIMARY EXAMINER